

CLAIMS

What is claimed is:

1. An electronic apparatus (7, 8) forming a sensor, an actuator or a control and comprising a control engine (13) as well as an integrated bus interface (12) via which the apparatus (7, 8) can be connected to a data bus (6) for the communication of the apparatus (7, 8) with at least one further apparatus (7, 8) connected to the data bus and forming a sensor, an actuator or a control, and comprising a device-specific definition engine (16, 18, 19) in which parameters required for the communication, function and/or configuration of the electronic apparatus (7, 8) are stored, with the device-specific definition engine (16, 18, 19) being present in a device-specific format and the parameters being able to be accessed via the control engine (13),

characterized in that a universal definition engine (1) is provided which is present in a device-independent, standardized format and in which all the parameters of the electronic apparatus (7, 8) required for the communication, function and configuration as well as additional parameters characterizing the electronic apparatus (7, 8) are stored; and in that the device-specific definition engine (16, 18, 19) can be generated automatically from the universal definition engine (1).

2. An apparatus in accordance with claim 1, characterized in that further device-specific elements (3, 4, 5), in particular control engine elements (15, 17), manufacturer-specific device profiles (27), functional elements (15, 20) of a configuration unit (11) provided for the electronic device (7, 8) and/or documentations (2), can be generated automatically from the universal definition engine (1).

3. An apparatus in accordance with claim 1, characterized in that the manufacturer-specific device profile (27) is independent of application-specific circumstances such as of the bus protocol, of the application field or the like; and in that an application-specific device profile (36, 39) can be generated from the manufacturer-specific device profile.

4. An apparatus in accordance with claim 1, characterized in that respective version information is additionally stored for at least some or for all of the parameters stored in the universal definition engine (1).

5. An apparatus in accordance with claim 1, characterized in that functional dependencies between individual parameters are stored in the universal definition engine (1).

6. An apparatus in accordance with claim 1, characterized in that the universal definition engine (1) is formed by one or more files.

7. An apparatus in accordance with claim 6, characterized in that the file(s) is/are present in XML format.

8. An apparatus in accordance with claim 1, characterized in that the device-specific definition engine (16) is provided inside the electronic apparatus (7).

9. An apparatus in accordance with claim 1, characterized in that the device-specific definition engine (18, 19) is provided at least partly separate from the electronic apparatus (8).

10. An apparatus in accordance with claim 1, characterized in that references generated automatically inside the device-specific definition engine (16, 18) to device-specific elements (19, 20) present outside the electronic apparatus, in particular to control elements (20) of a configuration unit (11) provided for the electronic apparatus (7, 8) are included.

11. An apparatus in accordance with claim 1, characterized in that the device-specific engine (16, 18) can be addressed for different electronic apparatuses (7, 8) by a control unit connected to the data bus (6), in particular by a configuration unit (11) provided for the electronic apparatus, via a uniform, standardized command transported to the control engine (13) via the data bus (6).

12. An apparatus in accordance with claim 1, characterized in that a configuration unit (11) which can be connected to the data bus (6) is provided for the electronic apparatus (7, 8); in that the device-specific definition engine (16, 18) can be addressed and evaluated by the configuration unit (11); and in that the configuration unit (11) has a different device-specific functional extent in dependence on parameters read out of the device-specific definition engine (16, 18).

13. An apparatus in accordance with claim 12, characterized in that the configuration unit (11) is made as a computer program (configuration program).

14. An apparatus in accordance with claim 12, characterized in that visualization parameters are stored in the universal definition engine (1) which can be converted into corresponding visualization parameters of the device-specific definition engine (16, 18, 19); and in that the interface of the configuration program (11), i.e. the visual appearance of the configuration program, changes in dependence on the visualization parameters read out of the device-specific definition engine (16, 18, 19).

15. An apparatus in accordance with claim 5, characterized in that the functional dependencies stored in the universal definition engine (1) can be converted into functional elements (20) of the configuration unit (11); and in that the dependencies between the parameters can be checked by the configuration unit (11) by means of the functional elements (20).

16. An apparatus in accordance with claim 5, characterized in that the functional dependencies stored in the universal definition engine (1) can be converted into control engine elements (15, 17) of the control engine (13); and in that the dependencies between the parameters can be checked by the control engine (13) by means of the control engine elements (15, 17).

17. A bus system comprising a data bus (6) and a plurality of apparatuses (7, 8) in accordance with claim 1 connected to the data bus (6).